DOCUMENT RESUME

ED 043 410 RC 004 657

AUTHOR Wasden, Jed W.
TITLE An Exemplary Program for Occupational Preparation in Selected Agricultural and Industrial Activities for Small High Schools in Utah. An Integrated Shop Program.
INSTITUTION Utah State Board for Vocational Education, Salt Lake City.
PUB DATE [70]
NOTE 12p.

EDRS PRICE EDRS Price MF-$0.25 HC-$0.70
DESCRIPTORS *Agricultural Education, Curriculum, Educational Diagnosis, Educational Problems, *Educational Programs, *Industrial Education, Integrated Activities, Secondary Schools, *Small Schools, *Vocational Education
IDENTIFIERS Utah

ABSTRACT

Many educational problems center around vocational education--its place in the total educational program, its relation to academic education, when vocational education should be started, and who should participate. Vocational education, the alternative to college preparatory programs, is frequently rejected and more often misunderstood by administrators and consumers of American education. Present-day technology has created a new relationship between man, his work, and his education. There is ample evidence that all persons who work need more education than they have had in the past; yet it appears that our present educational system is not preparing them adequately for many kinds of occupations. The major effort in education is given to programs that lead to a baccalaureate degree. This is done despite the fact that, of approximately 58 million students enrolled in educational institutions, well over 40 million of them will not graduate from college. A major problem today is how to assist small high schools so that they can have adequate programs of vocational education. The document includes discussion of a program entitled "Proposed Organization of Courses in Vocational Education Programs for Small High Schools." (EJ)

EDO 43410

RECEIVED
SEP 14 1970
NMSU
E.R.I.C.

AN EXEMPLARY PROGRAM FOR OCCUPATIONAL PREPARATION IN SELECTED AGRICULTURAL AND INDUSTRIAL ACTIVITIES FOR SMALL HIGH SCHOOLS IN UTAH

An Integrated Shop Program

by
Jed W. Wasden

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Utah State Board for Vocational Education
Executive Officer - T. H. Bell
1400 University Club Building
136 East South Temple
Salt Lake City, Utah 84111

[1970]

RC 004657

UTAH STATE BOARD FOR VOCATIONAL EDUCATION
1400 University Club Building
136 East South Temple
Salt Lake City, Utah
84111

AN EXEMPLARY PROGRAM FOR OCCUPATIONAL PREPARATION IN SELECTED AGRICULTURAL AND INDUSTRIAL ACTIVITIES FOR SMALL HIGH SCHOOLS IN UTAH

An Integrated Shop Program

Introduction

The problems in modern day education are many. The solutions to these problems are not simple, yet good solutions to the problems are sorely needed. Many educational problems center around vocational education--its place in the total educational program, its relation to academic education, how many students need it, where it should be started, the attitudes of teachers, students, parents, and others toward it, and what should be expected of it.

Vocational education has generally not been in the pattern of traditional education, hence, it has been offered to a relatively small proportion of students. But there is evidence on every hand that more and more students need some kind of education and training for the world of work which they have not been receiving.

Claims are made that technology has created a new relationship between man, his education, and his work and that education now stands clearly between men and his work. There is ample evidence on every hand that because of technological changes all persons who work need more education than they have had in the past, yet it appears that the kind of education they have had is not preparing them adequately for many kinds of occupations and that something different is needed. Our present educational system is supposed to be based on the idea of equal education opportunities for all young people, but the major effort is given to programs that lead to a baccalaureate degree. This is done despite the fact that out of approximately 58 million students who are enrolled in educational institutions at the present time, well over 40 million of them will not graduate from college with a baccalaureate degree. At the same time, when alternatives to college preparatory programs are offered they are frequently rejected and more often misunderstood by both the administrators and consumers of American education.

Regardless of the many problems involved, vocational education is on the increase and its importance is being recognized by various educational organizations. A good example of this is a publication of the National Committee on Secondary Education of the National Association of Secondary School Principals entitled, Educating for Work. In this publication the committee presents ten conclusions which have to do with vocational education. They are as follows:

1. The public educational system has a basic obligation to aid the preparation of all young people for effectiveness in the world of work.

2. Many traditional definitions and requirements of vocational education need to be modified to allow for expansion and variation.

   a. The numbers reached must be greatly increased
   b. The levels reached must be extended
   c. The areas of work covered by vocational offerings must be expanded, and changed when necessary to reflect changing job opportunities and requirements.

3. The development of vocational competence involves much more than what is generally called occupational, vocational, or technical education.

4. Vocational education must avoid too-exclusive emphasis on the building of a specific set of skills.

5. Great care should be exercised to protect and strengthen each student's general and liberal education.

6. Special efforts are necessary on behalf of a sizable marginal group of students.

7. Schools must build a greater range of resources and capabilities into their programs to provide instruction and services needed by the range of students now in school.

8. For the achievement of these multiple objectives the comprehensive high school generally provides a good setting.

9. Planning for vocational education should be comprehensive.

10. There is great need for research on every facet of the preparation of youth for vocational effectiveness.

Careful scrutiny of the above conclusions shows the concern of this group for the students' total education. Emphasis is given to both the general, or academic, education and the vocational. Differences of opinion have often existed between general and vocational educators concerning the emphasis that should be given to each of these important phases of the total education of the individual. There is ample evidence to show that regardless of what the best time and effort distribution should be, the educational training of all workers must include adequate general education along with job preparation.

The content of the general education is also very important because some of the things which have been taught under this heading in the past have not been very palatable to vocational education students. Apparently, vocational educators must provide for more general education in the total training program than they have in the past and the general educators must realize that general education alone does not provide all the education needed for the world of work.

Some writers in the field now are advocating that the general education should be organized around vocations so that the greatest contribution possible is made to the vocational competence of the students. Although there are many differences of opinion regarding these matters, it does appear that efforts must be made to bring about the proper balance among all phases of the total education program. The Exemplary Program described in the pages which follow attempts to do this.

Vocational Education Problems With Small High Schools

A major problem faced by present day educators is how to assist small high schools so that they can provide an adequate program of vocational education. In nearly all high schools academic type college preparatory programs have been emphasized and little has been done to provide good vocational education programs. The medium sized and large high schools have not been faced with this problem to the same extent as the small high schools, although they have been concerned with it. Within a small high school it is very possible that the students will have interests in a great variety of occupations, but because of the difficulty of offering classes for very small numbers of students, and also because of the expense involved, it is almost impossible for the small high schools to provide much vocational education, especially in the industrial occupations. Utah has recognized this problem and about two years ago the Vocational Division of the Office of the State Superintendent of Public Instruction started to make plans for a vocational education program which could be implemented in small high schools of the state in order to provide a much broader offering than most of them have had in the past. During the intervening time a complete program has been organized and structured as a four year exemplary program for occupational preparation in selected agricultural and industrial activities. The content of the program is drawn from the areas of industrial arts, trade and industrial education, and agricultural mechanics. Seven members of the vocational division, together with a person appointed to serve as project coordinator, have served as the state committee to prepare the program. After the program was worked out in considerable detail, permission was obtained from Dr. T. H. Bell, State Superintendent of Public Instruction, to move ahead with the implementation of the program.

Objectives of the Program

The major, over-all purpose of the project is to provide improved programs of occupational preparation in the small high schools of Utah so that students from such schools may be better prepared than they presently are to enter industry or to continue their education and training at a post secondary institution. The objective may be stated in a somewhat different form in this manner: To provide more adequate curricular offerings than are presently available in occupational preparation by combining common and essential educational activities drawn from industrial arts, trade and industrial education, and agricultural mechanics courses in order to serve better the vocational education needs of students in small high schools of Utah.

Objectives for initiating the program into a few pilot high schools were as follows:

1. To select a few small high schools in Utah, who meet the necessary criteria, to conduct pilot programs in vocational-industrial education for small high schools.

2. To provide leadership for the program through the Vocational Division of the Office of the State Superintendent of Public Instruction.

3. To provide, in cooperation with the school districts in which pilot programs are conducted, the tools, equipment, and supplies needed to make the program successful.

4. To provide the necessary teacher education program so that teachers will be adequately prepared to conduct the new programs effectively.

5. To provide specialized supervision of the pilot programs so that they will have the greatest opportunity possible for success.

6. To assist the selected schools to prepare the physical facilities (industrial arts shops, agricultural mechanics shops, or both) in the manner needed to conduct successfully the pilot programs.

The General Nature of the Proposed Program

There are many kinds of vocational-industrial education courses which could be offered to meet the objectives of this project. However, it is impossible to offer a great variety of them in a small high school. Even though the interests of students may be many and varied and it would be desirable from their standpoint to have a great variety of offerings, it is not economically feasible to offer all of the types of work that students might desire. Recognizing this fact, a committee working in the preliminary phase of this project selected the general areas of drafting, woodwork and building construction, metal fabrication, and power mechanics as the programs to be offered. The reasons for this selection were as follows:

1. All of these kinds of work are important in modern society. In fact, the total number of jobs related to these four areas of work represent a large and important segment of the labor force, and there are usually ample opportunities for employment.

2. Many of the school shops in small high schools already have a considerable amount of the basic equipment needed to teach these courses. Most of them also have the building space needed.

3. Students generally have interests in one or more of these areas. Of course, some students may have interests and aptitudes in important industrial areas not herein represented, but in terms of the limitations under which small high schools operate it seems that these particular areas would serve the needs of more students than most others which might be selected.

It is anticipated that the first two years of the program, ninth and tenth grades, will be largely exploratory in nature. At the conclusion of this part of the program a student who is interested in obtaining additional training would select one or possibly two specialized areas in which he would get greater depth of training during the eleventh and twelfth grades. The organization of the courses into the total four-year program is shown on the following page.

PROPOSED ORGANIZATION OF COURSES
IN
VOCATIONAL EDUCATION PROGRAM
FOR SMALL HIGH SCHOOLS

Ninth Grade (1 hour per day for 36 weeks) — Suggested Approximate Time

1. Planning and design (drafting) — 18 weeks
   a. Introduction, review, and preview
   b. Basic mechanical drawing
2. Woodwork and building construction — 18 weeks
   a. Planning and design
   b. Hand woodworking
   c. Machine Woodworking
   d. Elementary building construction processes
   e. Elementary house wiring
   f. Completion and evaluation

Tenth Grade (1 hour per day for 36 weeks)

1. Metals fabrication — 18 weeks
   a. Planning and design
   b. Sheet metal
   c. Bench metal
   d. Welding
   e. Machine work
2. Power Mechanics — 18 weeks
   a. Hydraulics
   b. Steam power
   c. Electric power
   d. Atomic power
   e. Auto and tractor mechanics
   f. Small engines

Eleventh Grade (2 hours per day for 36 weeks)

1. Introduction, review, and preview
2. Planning and design
3. Four or five programs would be carried on simultaneously for the remainder of the year. Students enrolled in the course would select their field of specialization and concentrate their efforts in that specialized field. The programs could well be the following:
   a. Drafting
   b. Building Construction
   c. Metal fabrication--Primarily machine work and welding
   d. Power mechanics

Twelfth Grade (2 hours per day for 36 weeks)

1. Introduction, review, and preview
2. Planning and design
3. Continuation of the same kind of program as the second semester of the eleventh grade, or, if stations are available, students could work in a co-op program. In both eleventh and twelfth grades the work would be largely on an individualized basis.

Implementing the Program Through Pilot Schools

Because of the fact that this exemplary program for occupational preparation in selected industrial activities for small high schools is essentially a new program, it was not intended that all the small high schools of the state would implement it at the same time. Rather, the plans called for the selection of a few schools to serve as pilot institutions. The school districts and the high schools selected to implement the pilot programs were to meet the following criteria:

1. The school district superintendent and the high school principal must have a keen interest in trying a new program such as this and in supporting it to the extent that it can be successful.

2. The teachers must be competent to teach the subject areas included in the program or must be willing to prepare themselves so that they will be competent. In addition, they must have an interest in the exemplary program and must do everything possible to make it successful.

3. The schedule of classes within a school must be such that students desiring the program will be able to register for it. Also, there must be enough students enrolled in the program to make it a fairly economic unit in the school system.

4. The physical facilities must be of such a nature that the space and equipment are adequate, or can be readily modified so that they are adequate, to accommodate the recommended program.

5. The school district must be in such a financial condition that it can furnish its share of the costs of the program. This would include its portion of:
   a. The teacher's salary
   b. The remodeling of the shop or shops
   c. The tools and equipment
   d. The supplies

6. If it is at all feasible, the community in which the pilot schools are located should have some industry related to one or more of the major areas offered in the training program.

7. The parents of the students who desire to enroll in the program should be willing to have their children engage in such a program and should be interested in supporting it so that it can be successful.

School Administration

The fact should be recognized that a certain amount of experimentation will likely be essential in implementing a new program and in establishing it thoroughly. If the program is to succeed there must be understanding on the part of the administrators concerning the experimentation and certain changes that would result. This calls for the full support of the administrative personnel, otherwise, it is not likely that the program will be successful. If administrators believe in innovation in education, this can be a real boon to the teacher and those interested in seeing the program succeed.

The Teacher

There is no more important key to the success of any educational program than the teacher. Therefore, in relation to item two, the teachers who are selected to teach this program must have a keen interest in the kind of work being offered, they must be persons who enjoy teaching in small high schools, and like the administrators, they must be interested in innovative ideas in education. Also, these teachers should be interested in remaining in a school long enough to get the program well established and functioning properly. A frequent turnover among the teachers could be disastrous to the program. The teacher should also be versatile and preferably should have had some training in each of the vocational fields included in the total program.

Small High Schools and Numbers of Students

One of the real problems in a small high school is that of having a sufficiently large number of students to justify offering certain courses or programs. One of the reasons for developing this exemplary program out of industrial arts, auto mechanics, and agricultural mechanics is to solve this problem of small numbers. Most small schools would still have sufficient students to offer at least one section of the ninth and tenth grade programs. If this were not true, a school could offer a ninth grade program one year and enroll both ninth and tenth graders, then the next year with the same students offer the tenth grade program. By offering three or four of the recommended programs in the eleventh and twelfth grades, there should be a sufficient number of students to make up a good class that can still be justified on an economic basis. Perhaps it should also be mentioned that eleventh and twelfth grade programs could be alternated or combined in case there were not enough students to offer them separately.

Financial Support

All persons involved in the exemplary occupational preparation program for small high schools must recognize the fact that it can be considerably more expensive than a regular classroom academic type program. In the past, this has frequently been a deterrant to the establishment of vocational programs or any other program that might be quite costly. The fact that this program may be fairly expensive should not discourage the school from accepting it because additional financial support from vocational education funds will be allotted to schools carrying this program. It should also be remembered that one of the major purposes of this program is to assist young people in preparing themselves for the world of work and a little additional cost may be fully justified in terms of the results obtained.

The persons who have been engaged in preparing the program have recognized the fact that additional equipment was needed in all of the schools where the pilot programs were being conducted. The amount needed varied in the different schools, but essentially the same allotment was made to each of the schools in order to bring the equipment up to an acceptable standard. Small tools and supplies were also needed. In general, the state department was to furnish one half of the cost and the local districts the other half. In addition, each district participating in the program was to furnish $10.00 per student enrolled in the program for supplies which would be used by all students.

Cooperation With Industry

When a student is in his specialized training in the eleventh and twelfth grades it would be very desirable for him to have actual experience on the job. If there are businesses and industries in the local area where students could be assigned for part of their training, particularly in the twelfth grade, this type of activity would enrich the program greatly. The owners or operators of the businesses should be willing to cooperate with the school in the training of the young people.

Community Support

Community support for an educational program is always very desirable and the attitude or opinion of the community comes largely from the parents comprising the community. With all the pressures there have been in recent years for all or nearly all young people to attend college, there may be some problems in gaining full support for vocational programs. The facts show, however, that a smaller percentage of young people from small communities attend college than from larger urban centers, especially where there is a four year college or university. Also, the facts show that many young people enter college who would be much better off in a good vocational education program. Therefore, a good public relations program should be established so that parents will be informed concerning the nature of the program and what it can do for a great number of our young people.

Selecting the Pilot Schools

Superintendents in school districts in the state which had small high schools in them were invited to come to Salt Lake City where the entire program was explained to them. If they were interested in the program they were asked to make application for one or more of their schools to be included as a pilot school. From the applications submitted, seven schools were selected and the school districts contracted with the State School Office to support the program financially and otherwise and to offer the program for a minimum of three years. The schools selected represented wide geographic distribution throughout the state and not more than one school was selected from any school district. From the seven schools selected, eight teachers were involved.

Workshop for Teachers in Pilot Schools

The eight teachers from the seven pilot schools participated in a special teacher education workshop during the summer of 1969 for a period of twelve weeks, eight hours or more per day. They were given special compensation for the three month period devoted to the workshop.

The state committee realized fully that the teachers in the pilot schools would already have acquired much of the knowledge and many of the skills needed for the new program, but it would be very unlikely that they would have all the knowledge and skills needed. Also, the new program would be different enough in its structure and its purposes that it would be imperative for teachers to receive adequate preparation for their assignments.

During the first two weeks of the summer workshop, each teacher made an intensive study of his own shop to determine what changes needed to be made in

order to have it in the best condition possible to carry on the new program. In doing this he consulted with the other teachers in the group, with the project coordinator and with other persons knowledgeable in shop organization and management. When the teacher thought he had his shop organized as it ought to be, the entire workshop group was called together to critique the plans. This procedure resulted in much good. As each teacher worked over his shop plans he provided for the location of new equipment and also prepared lists of this equipment for purchase through his own school board. Prior to this time, rather complete lists of equipment needed for each of the new courses had been prepared and copies of these lists were provided for the teachers. Against these lists teachers checked their existing inventories and made up the list for new tools and equipment.

Courses of study were prepared by the summer workshop participants for the four courses in the ninth and tenth grade programs. These courses of study were prepared on an "instructional packet" basis. This was done so that students could work through each of the courses on an individual basis if the teacher chose to have them do so, or the teacher could keep them pretty well together as a group if he preferred to do it this way. One idea in this was that the instructional packet would help the students to make a smooth transition from the kind of instruction they had been used to up to this time, into the individualized instruction which will be necessary in the eleventh and twelfth grade programs. Sufficient copies of all instructional packets were prepared so that every student in the program could have a copy of each one. Each instructional packet contains the following:

Directions to the student
Introduction
Concept
Objectives--in behavioral or performance form
Student activities
Reference materials

In addition, the instructional packets contain information and assignment sheets when necessary. Also, at the end of each packet is an instructional packet evaluation. This is a short quiz on the knowledge a student should acquire by completing the assignments given him in student activities. The directions to the student tell him that he must pass this test with a score of at least 70 percent in order to go on to the next packet. Experience has already shown that a few students need to do this two or three times in order to reach the 70 percent or higher, but there seems to be no opposition on their part. The great majority of students are successful on the first attempt.

From all of the instructional packet evaluations in each course, a selection was made of important test questions and these were put into an achievement test for the course which was given first as a pre-test at the beginning and then will be given again at the end of the course as a final achievement test. Test items are modified from the short quizzes for the achievement test when necessary.

It should be emphasized that teachers who participated in the special summer teacher education workshop, in addition to preparing the course of study material had opportunity to improve their skills in each of the four

areas chosen for the ninth and tenth grade programs. One half of their time was devoted to this. They actually had an opportunity to work through the same things they would be teaching.

Supervision of the Program

The total plans for this project call for careful supervision of the program in the pilot schools. Although much good was accomplished through the summer workshop, as the programs operate in the pilot schools, there are bound to be some problems arise with which the teacher should possibly be given some assistance. Of course, it is anticipated that when these programs are functioning satisfactorily the supervision of them will be taken over by the regular staff of the Vocational Division of the Office of the State Superintendent of Public Instruction. In the beginning, however, additional specialized supervision is desirable because the state specialists are extremely busy people with many responsibilities and it is difficult, even impossible, for them to devote a major portion of their time to any single aspect of their total responsibilities. They will be interested in the program and will follow it and give assistance, but additional supervision beyond that which the specialists can offer is provided so that the programs have a much better chance to succeed.

Evaluation of the Program

A program of the kind being described here needs to be evaluated and so does the work of the students enrolled in it. Therefore, the plans for this project provide for both student and program evaluation.

Student evaluation will be done through quizzes, short tests, and major examinations; through observation of student interest and response; and by performance tests for skill. As part of the testing program it is planned to pre-test all students enrolling in the proposed program and then to test them again at the completion of the year's work in order to measure the gain made by them. Also, a few small high schools not conducting the exemplary program will be selected and students enrolled in the regular industrial arts, trade and industrial education, and agricultural mechanics programs will go through the same testing procedures in order to ascertain whether or not students in the pilot schools make greater gains than the others.

Plans for the summer workshop will provide time for the preparation of evaluative devices which the teachers can use in evaluating students' progress. Standardized tests will be used wherever practicable in measuring student gain and in comparing the different groups mentioned above.

Further evaluation of the program will be made through the following means:

1. Interviews held with the superintendents of districts in which pilot programs are conducted.

2. Interviews with principals of the high schools in which the pilot programs are conducted.

3. By responses from students enrolled in the programs, probably through the use of a short questionnaire in which they will be able to express their opinions and make suggestions for improvements.

4. By calling a meeting for all the state specialists and others involved, including the teachers of pilot programs, for an evaluative session.

5. By obtaining the opinions of parents who have had students involved in the program.

Summary

By way of summary, a list of significant items related to this exemplary program for occupational preparation in selected agricultural and industrial activities for small high schools in Utah is given. These items are as follows:

1. The kind of world in which young people live and in which they will live in the future makes it mandatory that the public school system provide them with the means whereby they may acquire a salable skill.

2. Students in small high schools are handicapped by not being able to receive occupational preparation in a wide variety of occupations.

3. The Vocational Division of the Office of the State Superintendent of Public Instruction recognized the need for something to be done to provide the students in small high schools with a better offering of vocational programs than they have had in the past. Therefore, an exemplary program, especially relating to selected industrial occupations has been planned. The planned program draws its content from the areas of industrial arts, auto mechanics, and agricultural mechanics and organizes it into the major areas of (1) drafting, (2) woodwork and building construction, (3) metals fabrication, and (4) power mechanics. The first two years of the proposed program are largely exploratory in nature and the last two years permit the student to choose one of these areas and to receive considerable depth of training in it.

4. In order to implement this program it is to be conducted in the form of pilot programs in a few selected small high schools. In implementing the program in this manner the State Department of Education will:

   a. Provide funds for a special workshop to prepare the teachers who will be teaching the program in the pilot schools. In this workshop teachers will assist in working out the details for each course.

   b. Provide supervision for the pilot programs. This supervision will be specialized supervision for the project and will be beyond the regular supervision provided by the State School Specialists.

   c. Provide a list of tools and equipment specifying the minimum amount required to carry on the program. The equipment in each pilot school will be checked against this list and that which is needed to bring the school up to the standard set will be provided from school district funds and from vocational education funds through the State Department of Education on a cooperative basis.

   d. The same situation for supplies as that just described for equipment will also be effected.